Joint-Use U.S. Navy and Air Force Battery Maintenance Technical Order

Tri-Service Power Expo Briefing

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WHY ARE WE HERE?

Tri-Service Battery Specifications

- MIL-B-81757 – Vented Ni-Cd batteries with improved gas barriers (Permion, Celgard)
- MIL-PRF-81757 – LMV Ni-Cd batteries
- MIL-B-8565 – Medium-Rate Batteries
- MIL-PRF-8565 – Recombinant/Sealed Lead Acid Batteries (SLAB)
- MIL-P-18148–Aircraft Battery Power Connectors
- MIL-PRF-18148- Aircraft Battery High-Power Receptacles and Connectors

Joint-Use Battery Maintenance

- Standardized Navy and Air Force Ni-Cad and SLAB Battery Maintenance Procedures
- Common procedures listed in the Joint-Use Aircraft Battery Technical Order (T.O.) 17-15BAD-1/8D2-62-1
- Authorizes Navy to service AF batteries and vice versa.
- Standardized procedures will save Time, Money and Resources

Ni-Cd Maintenance

- Ni-Cd problems can be evaluated without completely disassembling the battery
- Current Leakage caused by electrolyte can be fixed by flushing case with water. Wet batteries will not effect electrical leakage test.
  - Cracks in the receptacle housing cause the majority of current leakage problems
  - Cells with electrical/electrolyte leakage problems can easily be found after removing the cell interconnect links.

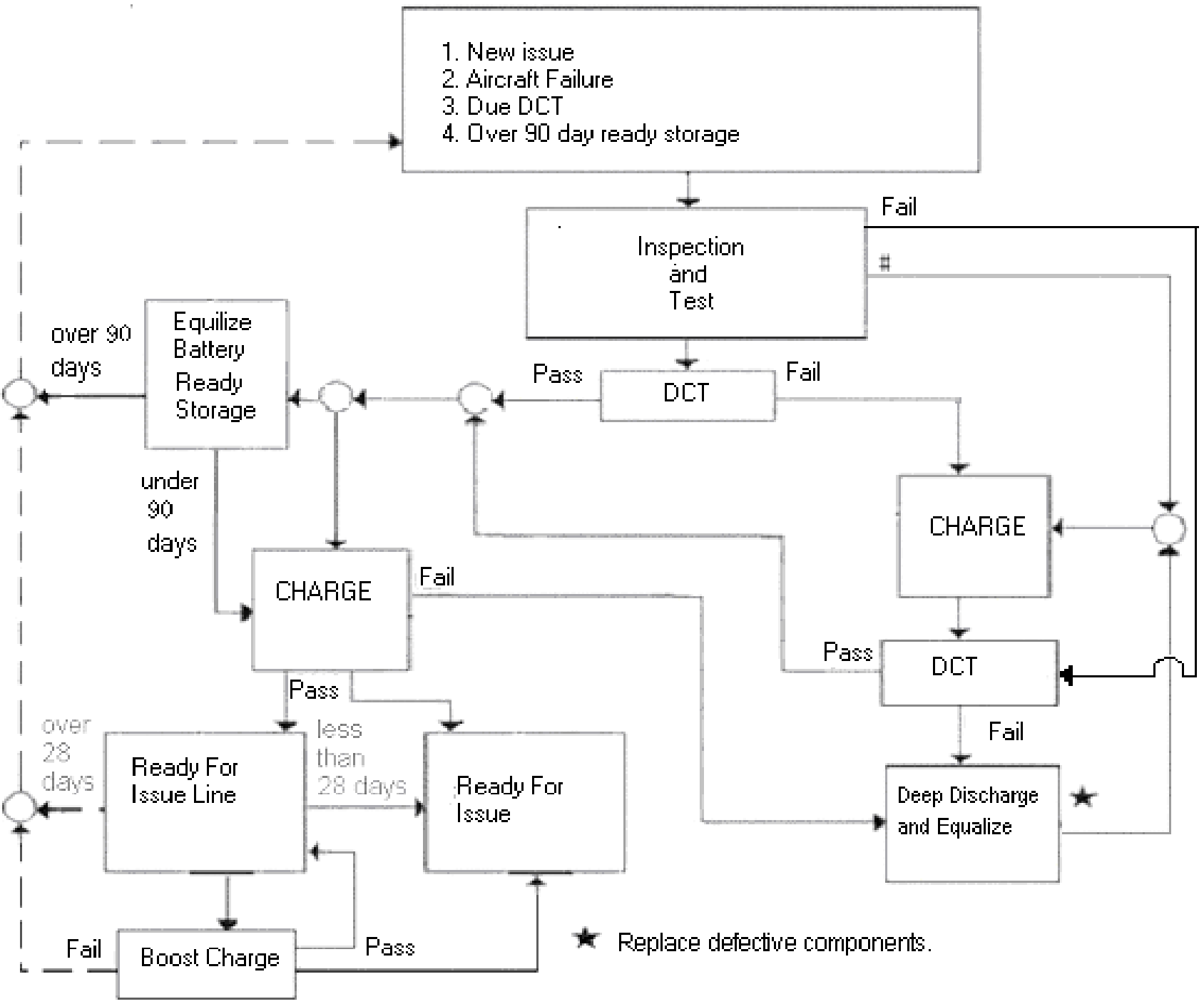
Ni-Cd Maintenance

- Only disassemble batteries to replace defective component, test component or resolve current leakage problems.
- Number each cell before disassembly and reinstall cells in the same position they were removed from to avoid gaps between cells.

  - Subsequent use causes cells to grow together again and gaps between the cell bodies should be avoided to prevent cell jar leakage.

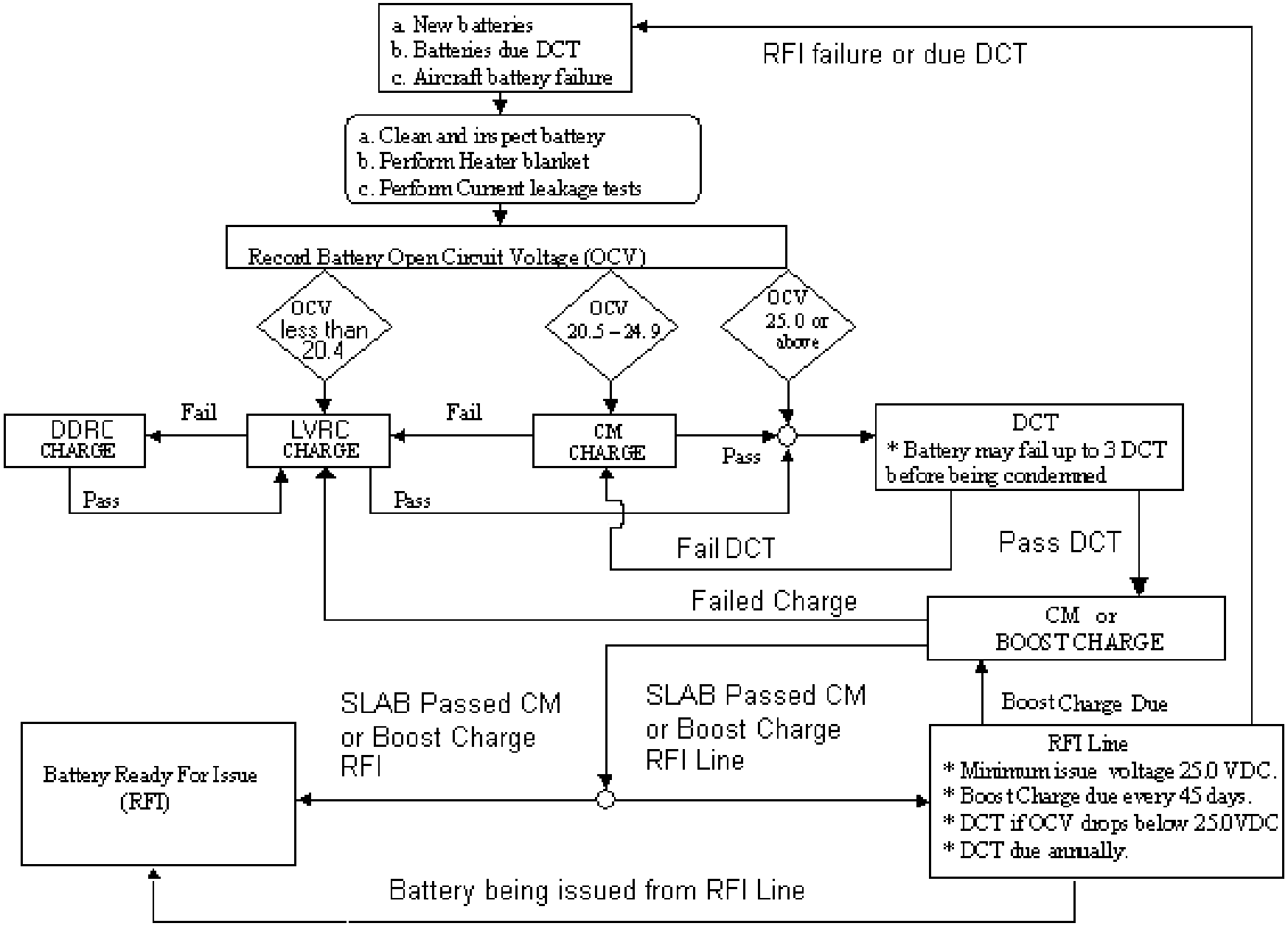
Ni-Cad Maintenance

- New Joint-Use Ni-Cad ReFLEX Charge/Discharge procedures.
- Initial Charge (15 minutes)
- ReFLEX (Main Charge up to 2 hours)
- Topping Charge (40 minutes, measure cell voltages and adjust cell electrolyte)


1. New issue
2. Aircraft Failure
3. Due DCT
4. Over 90 day ready storage
Inspection and Test
Fail
#
over 90 days
Equilize Battery Ready Storage
Pass
DCT
Fail
under 90 days
CHARGE
Fail
CHARGE
Pass
DCT
Pass
Fail
over 28 days
Ready For Issue Line
less than 28 days
Ready For Issue
Deep Discharge and Equalize
Fail
Boost Charge
Pass
★ Replace defective components.

SLAB Maintenance

- SLAB’s were being condemned in the field for non-recovery from accidental on-wing discharges (low-volts)
- New Joint-Use SLAB recovery procedures have recovered 24 volt batteries from 6 volts.


a. New batteries
b. Batteries due DCT
c. Aircraft battery failure
RFI failure or due DCT
a. Clean and inspect battery
b. Perform Heater blanket
c. Perform Current leakage tests
Record Battery Open Circuit Voltage (OCV)
OCV less than 20.4
OCV 20.5 – 24.9
OCV 25.0 or above
DDRC CHARGE
Fail
LVRC CHARGE
Fail
CM CHARGE
Pass
DCT
* Battery may fail up to 3 DCT before being condemned
Pass
Pass
Fail DCT
Pass DCT
Failed Charge
CM or BOOST CHARGE
SLAB Passed CM or Boost Charge RFI
SLAB Passed CM or Boost Charge RFI Line
Boost Charge Due
Battery Ready For Issue (RFI)
RFI Line
* Minimum issue voltage 25.0 VDC.
* Boost Charge due every 45 days.
* DCT if OCV drops below 25.0VDC
* DCT due annually.
Battery being issued from RFI Line

QUESTIONS AND ANSWE

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